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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,049	07/18/2001	Suresh Katukam	CISCP694	8487

26541 7590 06/30/2005

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EXAMINER

CHEA, PHILIP J

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/909,049

Applicant(s)

KATUKAM ET AL.

Examiner

Philip J. Chea

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-16, 18-31, 33, 37 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-16, 18-31, 33, 37, 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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### DETAILED ACTION

This Office Action is in response to remarks made in an After Final filed May 18, 2005. Claims 1-6,8-16,18-31,33,37,38 are currently pending. Upon consideration of the Applicants remarks, the previous Final rejection has been withdrawn, however a new Final rejection has been prepared in response.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 8-14,37,38 rejected under 35 U.S.C. 102(e) as being anticipated by Allen (U.S. 2001/0032271).

As per claims 1,12, Allen discloses a system for computing paths between a first node and a second node within a network (see column 9, lines 21-23, where optical network is implied), as claimed, comprising:

- a route generator being arranged to generate a primary circuit path between the first node and the second node; the primary path including a first element selected from the plurality of elements (see paragraphs [0025-0026], where primary path is considered working path, and first node is considered originating node, and second node is considered destination node); wherein the route generator is arranged to accept an input, the input being arranged to specify one of a nodal diverse constraint and a link diverse constraint for the alternate circuit path (see paragraphs [0037-0038]); and

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- a list mechanism being arranged to identify the first element, wherein the route generator is further arranged to generate an alternate circuit path between the first node and the second node using the list mechanism, wherein the alternate circuit path does not include the first element identified by the list mechanism and a failure of the first element does not affect generating the alternate circuit path (see paragraphs [0037-0038]).

As per claims 2,13, Allen discloses a system, as claimed, wherein the first element is a link (see paragraphs [0025-0026], and Fig. 1, where links are used to connect between the originating node and the destination node).

As per claims 3,14, Allen discloses a system, as claimed, wherein the first element is a node (see paragraphs [0025-0026]).

As per claim 5, Allen discloses a system, as claimed, wherein the route generator is arranged to generate the primary circuit path that includes the first element and a set of elements (see paragraphs [0025-0026]), and the list mechanism is arranged to identify the first element and the set of elements as being inaccessible for use in generating the alternate circuit path (see paragraphs [0037-0038]).

As per claim 8, Allen discloses a system, as claimed, wherein when the input specifies the nodal diverse constraint, the first element is a node (see paragraphs [0037-0038]).

As per claim 9, Allen discloses a system, as claimed, wherein when the input specifies the link diverse constraint, the first element is a link (see paragraphs [0037-0038], where nodes are separated by links).

As per claim 10, Allen discloses a system, as claimed, wherein the device is associated with the first node (see paragraph [0021]).

As per claim 11, Allen discloses a system, as claimed, wherein the route generator is further arranged to implement the primary circuit and the alternate circuit path (see paragraphs [0025-0026] and paragraphs [0037-0038], where it is implied the circuits are implemented once the routing decisions are made).

As per claim 37, Allen further discloses that the route generator is arranged to generate the primary circuit path and the alternate circuit path as nodal diverse paths in which the primary circuit path

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and the alternate circuit path have substantially no common nodes between the first node and the second node, and wherein when the primary circuit path and the alternate circuit path are the nodal diverse paths, the first element is a node (see paragraphs [0037-0039]).

As per claim 38, Allen further discloses that the route generator is arranged to generate the primary circuit path and the alternate circuit path as link diverse circuit paths in which the primary circuit path and the alternate circuit path share substantially no links between the first node and the second node, and wherein when the primary circuit path and the alternate circuit path are the link diverse circuit paths, and the first element is a link (see paragraphs [0037-0039]).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 19,21-23,24,26,27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Allen (U.S. 2001/0032271).

As per claims 19 and 24, Allen discloses an element for use in an optical network, the optical network including a plurality of links, the element comprising:

a route generator, the route generator being arranged to compute a first circuit path between the element and the destination node, wherein the first circuit path includes a first link included in the plurality of links (see paragraphs [0025-0026]); and

a list, the list including a plurality of identifiers, the plurality of identifiers being arranged to identify selected links included in the plurality of links, the plurality of identifiers including a first identifier that identifies the first link, wherein the route generator is further arranged to compute a second circuit path between the element and the destination node using the list, wherein the second circuit path includes a

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second link included in the plurality of links and does not include the selected links identified by the plurality of identifiers included in the list, wherein a failure of any of the selected links identified by the plurality of identifiers included in the list does not affect computing of the second circuit path (see paragraphs [0037-0038]).

Although Allen does not specifically state a list which includes identifiers for a plurality of links that are not to be included in the second circuit path, the Bloom filter taught by Allen implies a list, if not inherent, that contains information about the initial path and is used for creating the alternate path so that the elements contained in the initial path are not overlapped when creating the alternate path.

As per claim 21, Allen further discloses a system, as claimed, wherein the element described in claim 19 is a source node (see paragraph [0022]).

As per claim 22, Allen further discloses a system, as claimed, wherein route generator identifies a first link to place in the list (see paragraph [0036]).

As per claim 23, Allen further discloses identifiers that are arranged to identify the selected links included in the plurality of links and to place the plurality of identifiers that are arranged to identify the selected links included in the plurality of links in the list [see paragraph [0039)].

As per claim 26, Allen further discloses an element applied to claim 23 above as a source node (see column 7, lines 46-60, where transporting data implies the node being a source to another object on the network).

As per claim 27, Allen further discloses an element applied to claim 23 above to place the first identifier that identifies the first node in the list (see columns 7 and 8, lines 65-67 and 1-12, where failure types can be links or nodes and the implied list is used to remember the location and type of failure).

5. Claims 4,6,16,18,20,25,28-30,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen as applied to claims 1, 5, 12,19,24 above, and further in view of Applicant's Prior Art.

As per claims 4,6,16,18, 20 and 25, Allen discloses means for identifying the link as being inaccessible to the alternate circuit path, wherein the means for including the identifier which identifies the

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first element as being inaccessible for use as a part of the alternate circuit path is arranged to include an identifier which identifies the link as being inaccessible to the alternate circuit path in the list.

Although the system disclosed by Allen shows substantial features of the claimed invention (discussed above), it fails to disclose the link being a protected link.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Allen, as evidenced by the Applicant.

In an analogous art, the Applicant discloses that it is old and well known in the art to have a network that contains protected links (see Specification page 2, lines 17-27). Further it would have been obvious to modify Allen by enabling the alternate circuit path to avoid the protected link and identify it as being inaccessible in order to avoid the high costs incurred of traversing the protected link.

As per claims 28,33, Allen discloses a system for computing an alternate circuit path that corresponds to a primary circuit path within a network, the network including a plurality of elements, the primary circuit path being defined between a start node and an end node, the primary circuit path including a first element selected from the plurality of elements, wherein the plurality of elements includes a link (see paragraphs [0025-0026], the system comprising:

identifying the first element as being inaccessible to the alternate circuit path using a routing algorithm (see paragraphs [0037-0038]; and

creating the alternate circuit path using the routing algorithm, wherein creating the alternate circuit path includes creating the alternate circuit path between the start node and the end node such that the first element and the link are not included in the alternate circuit path using at least one element selected from the plurality of elements that is not the first element, and wherein a failure of the first element does not affect creating the alternate path (see paragraphs [0037-0038]).

Although the system disclosed by Allen shows substantial features of the claimed invention (discussed above), it fails to disclose the link being a protected link and identifying the protected link as being inaccessible to the alternate circuit path using the routing algorithm.

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Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Allen, as evidenced by the Applicant.

In an analogous art, the Applicant discloses that it is old and well known in the art to have a network that contains protected links (see Specification page 2, lines 17-27). Further it would have been obvious to modify Allen by enabling the alternate circuit path to avoid the protected link and identify it as being inaccessible in order to avoid the high costs incurred of traversing the protected link.

As per claim 29, Allen in view of the Applicant further disclose that the first element is a link (see paragraphs [0025-0026], and Fig. 1, where links are used to connect between the originating node and the destination node).

As per claim 30, Allen in view of the Applicant further disclose that the first element is a node (see paragraphs [0025-0026]).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen as applied to claim 12 above, and further in view of Swallow (U.S. 6,751,190).

Although the system disclosed by Allen shows substantial features of the claimed invention (discussed above), it fails to disclose a means for identifying a tunnel in the primary circuit path and means for identifying the first element as being included in the tunnel.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Allen, as evidenced by Swallow.

In an analogous art, Swallow discloses a communications tunnel comprising a plurality of elements [Figure 1] where a first element included in the tunnel is identified as not being accessible by the alternate route (see column 3, lines 9-40, where the bypass tunnel (128) is used that does not include the first element (106)).

Given the teaching of Swallow, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Allen by employing a tunnel bypassing system, such as disclosed by Swallow, in order to give support for realtime data transfer which might implement in-order delivery of packets using a tunnel (see Swallow column 1, lines 47-67).



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7. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in view of the Applicant as applied to claim 12 above, and further in view of Swallow (U.S. 6,751,190).

Although the system disclosed by Allen in view of the Applicant shows substantial features of the claimed invention (discussed above), it fails to disclose a means for identifying a tunnel in the primary circuit path and means for identifying the first node as being included in the tunnel.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Allen in view of the Applicant, as evidenced by Swallow.

In an analogous art, Swallow discloses a communications tunnel comprising a plurality of elements [Figure 1] where a first element included in the tunnel is identified as not being accessible by the alternate route (see column 3, lines 9-40, where the bypass tunnel (128) is used that does not include the first element (106)).

Given the teaching of Swallow, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Allen in view of the Applicant by employing a tunnel bypassing system, such as disclosed by Swallow, in order to give support for realtime data transfer which might implement in-order delivery of packets using a tunnel (see Swallow column 1, lines 47-67).

#### ***Response to Arguments***

8. Applicant's arguments for claims 1,12,19,24 and their dependents filed on May 18, 2005, have been fully considered but they are not persuasive.

(A) Applicant contends that Allen does not teach of an input accepted by a route generator that specifies either a nodal diverse constraint or a link diverse constraint.

(B) Applicant contends that Allen does not teach of a list which includes identifiers for a plurality of links that are not to be included in a second path.

(C) Applicant contends that Allen does not teach of an indicator or an identifier that identifies a link being placed in a list.

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9. Applicant's arguments with respect to claims 28,33 and their dependents have been considered but are moot in view of the new ground(s) of rejection.

In considering (A), the Examiner respectfully disagrees. The word constraint is too broad to overcome the prior art. Allen does in fact generate a route that constrains a second path to be diverse from an initial path as cited in paragraphs [0037] and [0038], where an explicit path, which does not overlap the initial path, is generated.

In considering (B), the Examiner respectfully disagrees. Allen shows that a Bloom filter is used to keep track of a route digest for an initial path from node 102a to 102j (see paragraph [0036]). Further showing that the same Bloom filter is used to pick a second path that is diverse from the path established by the initial path (see paragraph [0038]). Therefore, it is implied, if not inherent, that there is a list stored in memory that allows the second path to compare with the initial path in order to avoid overlap between the paths.

In considering (C), the Examiner respectfully disagrees. The initial rejection has been overcome because the Examiner cited inappropriate text to teach the limitation, but given the new cited text, the rejection is maintained. In reference to Allen, paragraph [0036], it is indicated that a path established of links and nodes is recorded by the Bloom filter, where a list mechanism is used to store the resources (e.g. physical fiber, port) that separate two nodes creating an initial path.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J. Chea whose telephone number is 571-272-3951. The examiner can normally be reached on M-F 7:00-4:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Philip J Chea  
Examiner  
Art Unit 2153

PJC 6/14/05

  
**GLENTON B. BURGESS**  
**SUPERVISORY PATENT EXAMINER**  
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